

Is there a correlation between the Purple Sea Urchin population levels and Iridescent Algae population levels at Pigeon Point?

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Introduction

Sea urchins are important to the rocky intertidal because they are a main food source for sea otters and they are strong grazers of kelp and other algae. We were trying to see if a population change in the urchins has an affect on the population of iridescent algae. This is an important question because if there are an abundance of urchins they could possibly over graze the iridescent algae.



Figure 1. The purple sea urchin feeds on flat algae.

Materials and methods

All data was collected at Pigeon Point, San Mateo County, CA. Students physically went out to this rocky intertidal zone to count the abundance of 33 species of invertebrates and algae as part of the LiMPETS long term monitoring study. Using a randomly placed 0.25 m² quadrat on a level area, they counted how many squares in the quadrat contain at least one of the assigned species.



Figure 2. These students are using a quadrat in order to collect data from the Rocky intertidal

Results

According to our data we have noticed a few correlations such as the varying location of the two organisms on the transect. According to the graphs below it seems that as the iridescent algae moves up or down on the transect the purple sea urchins follow.

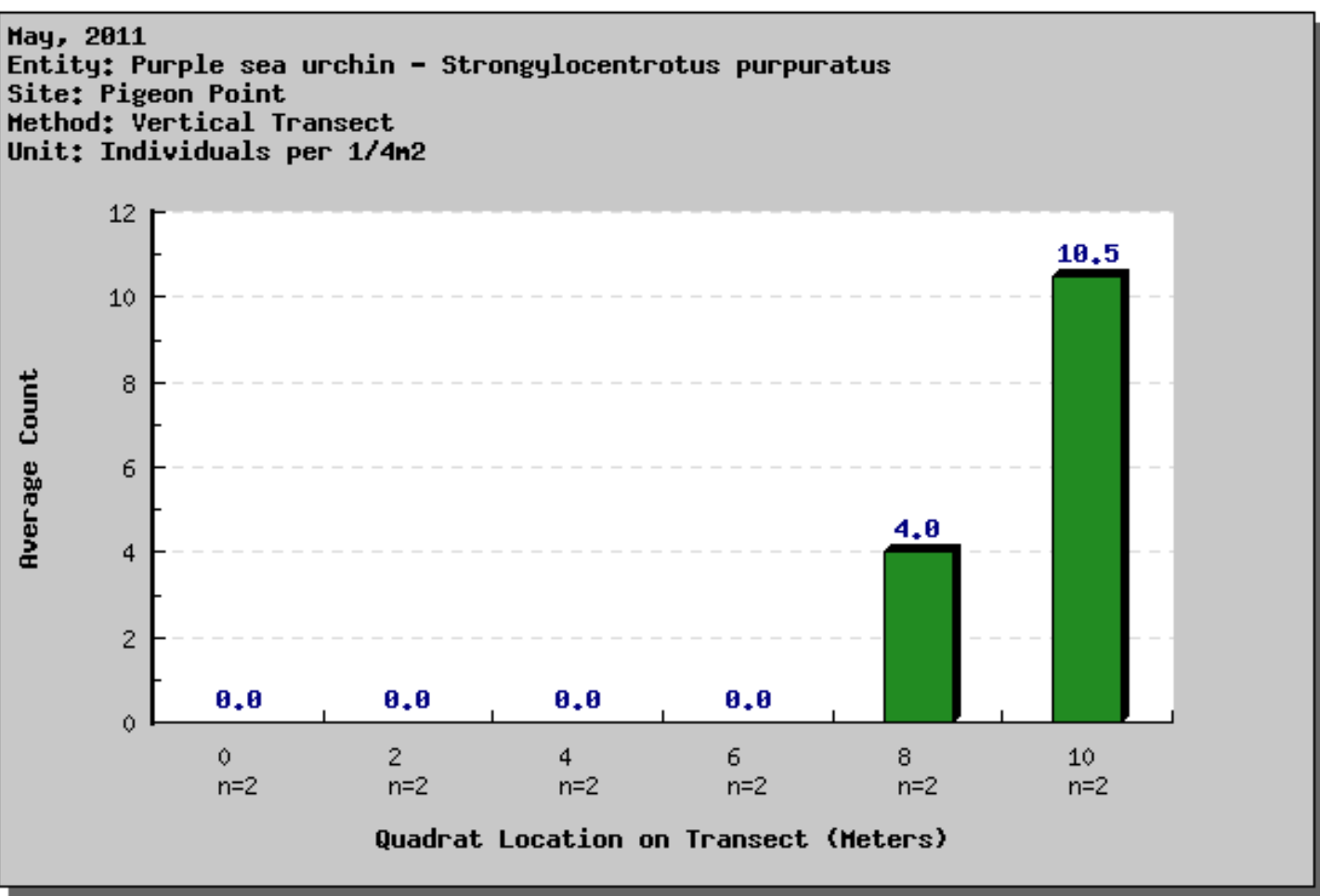
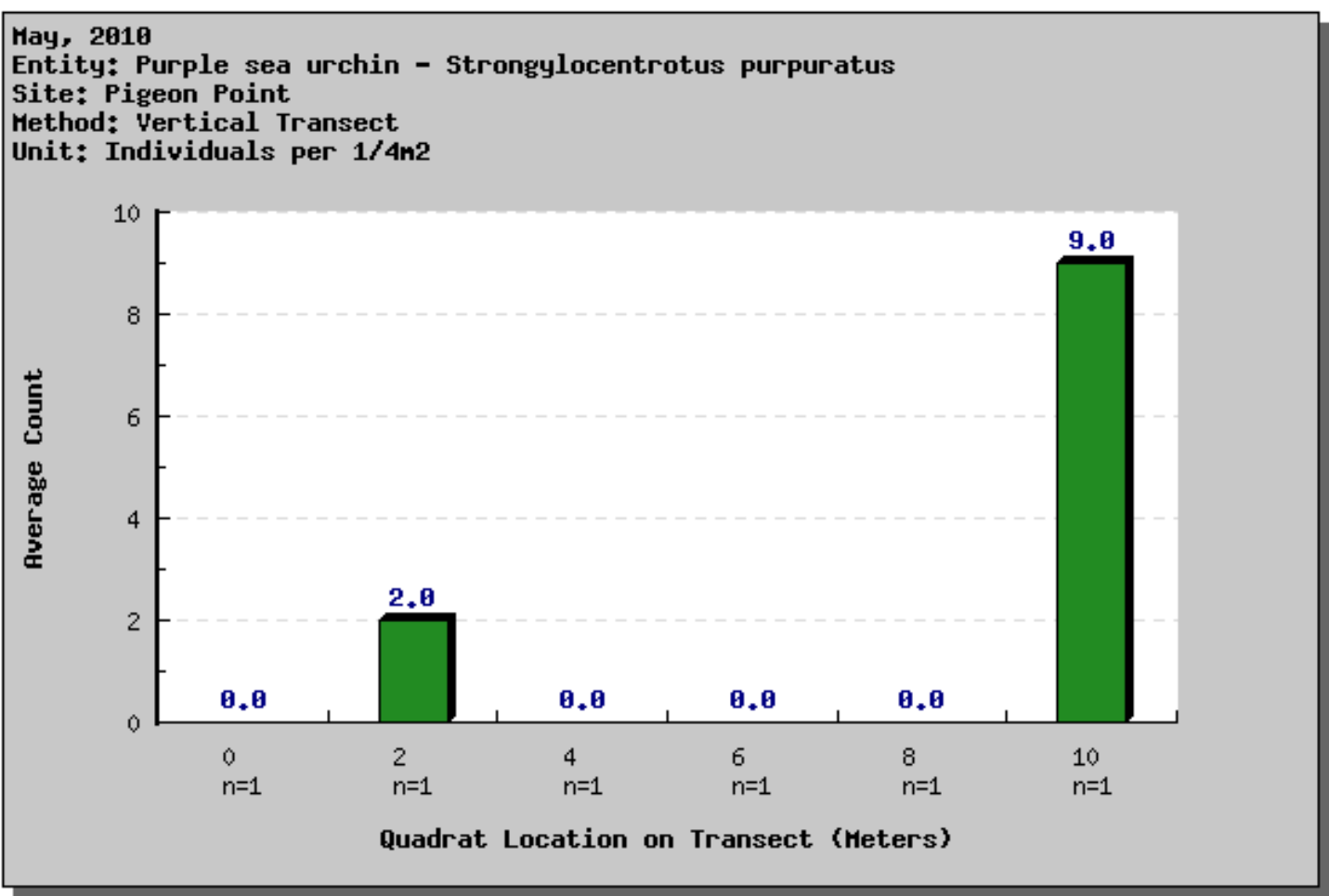
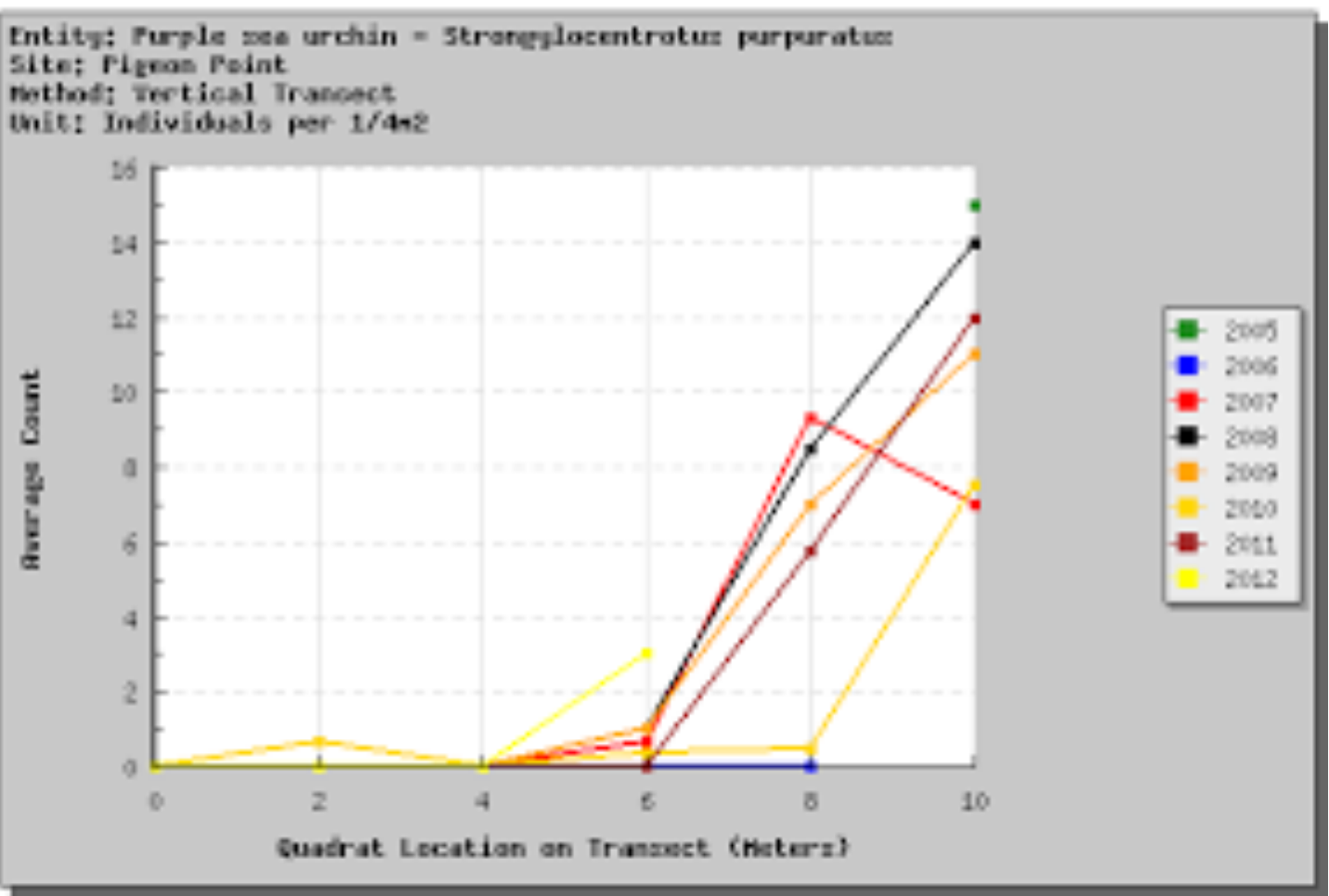
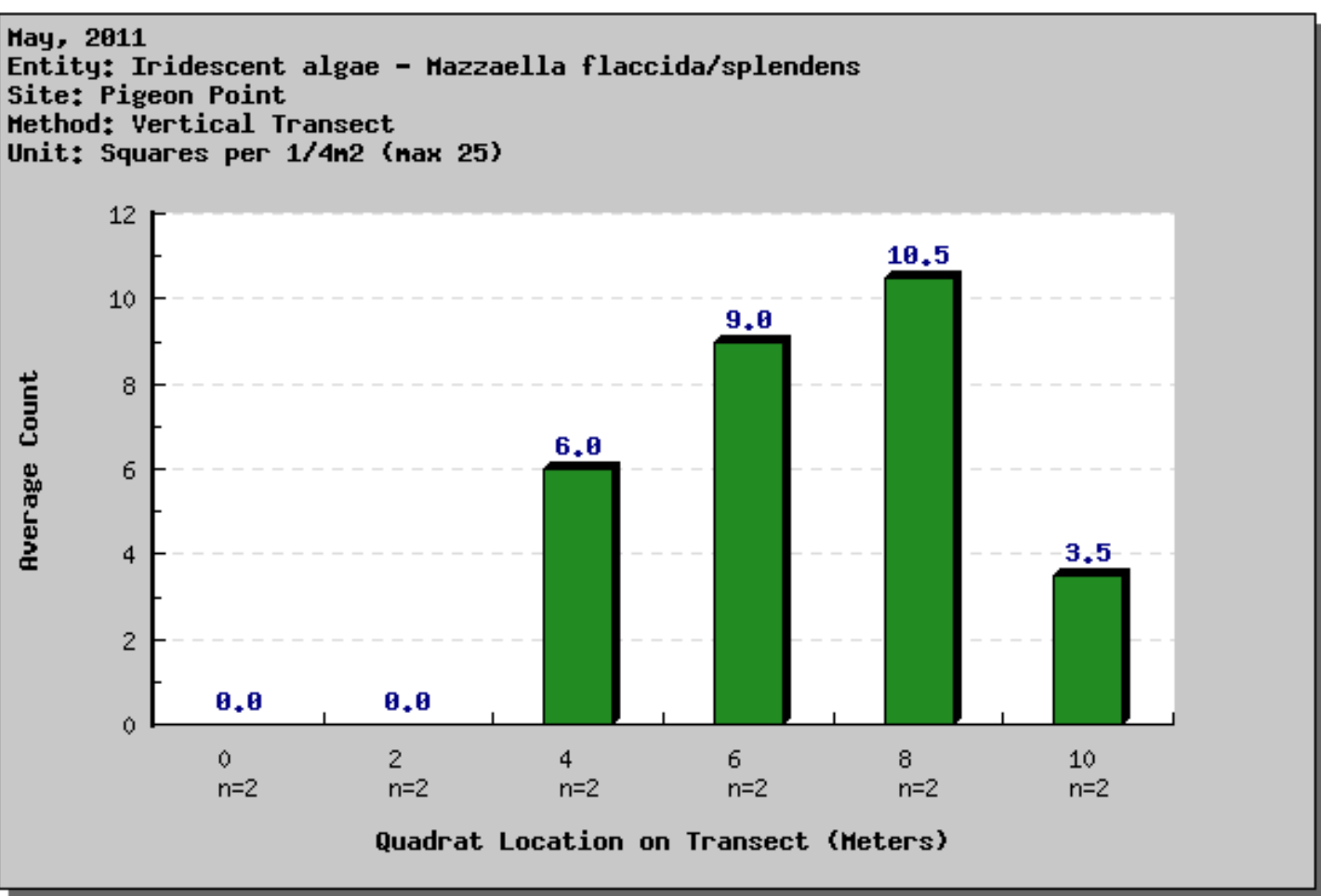
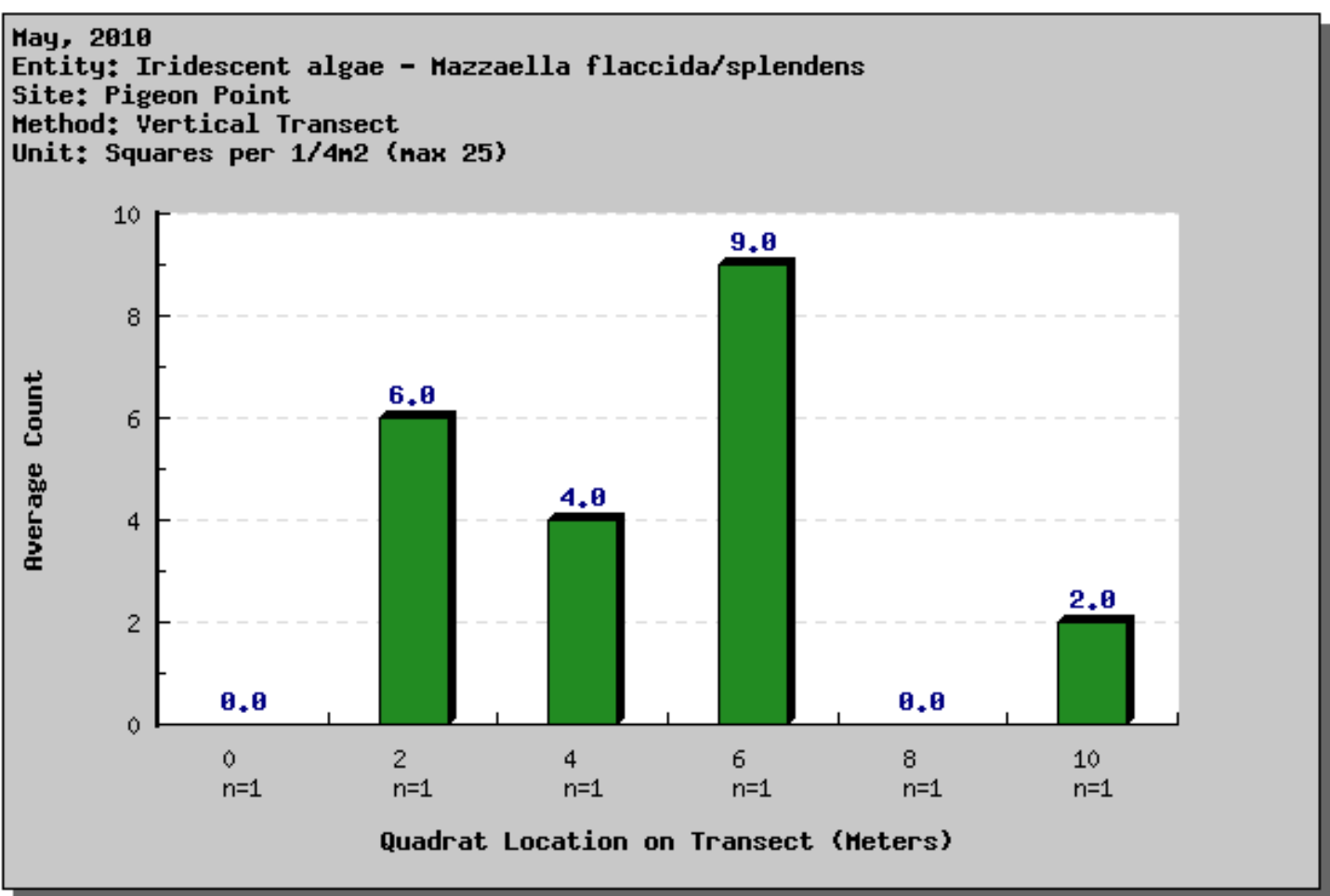
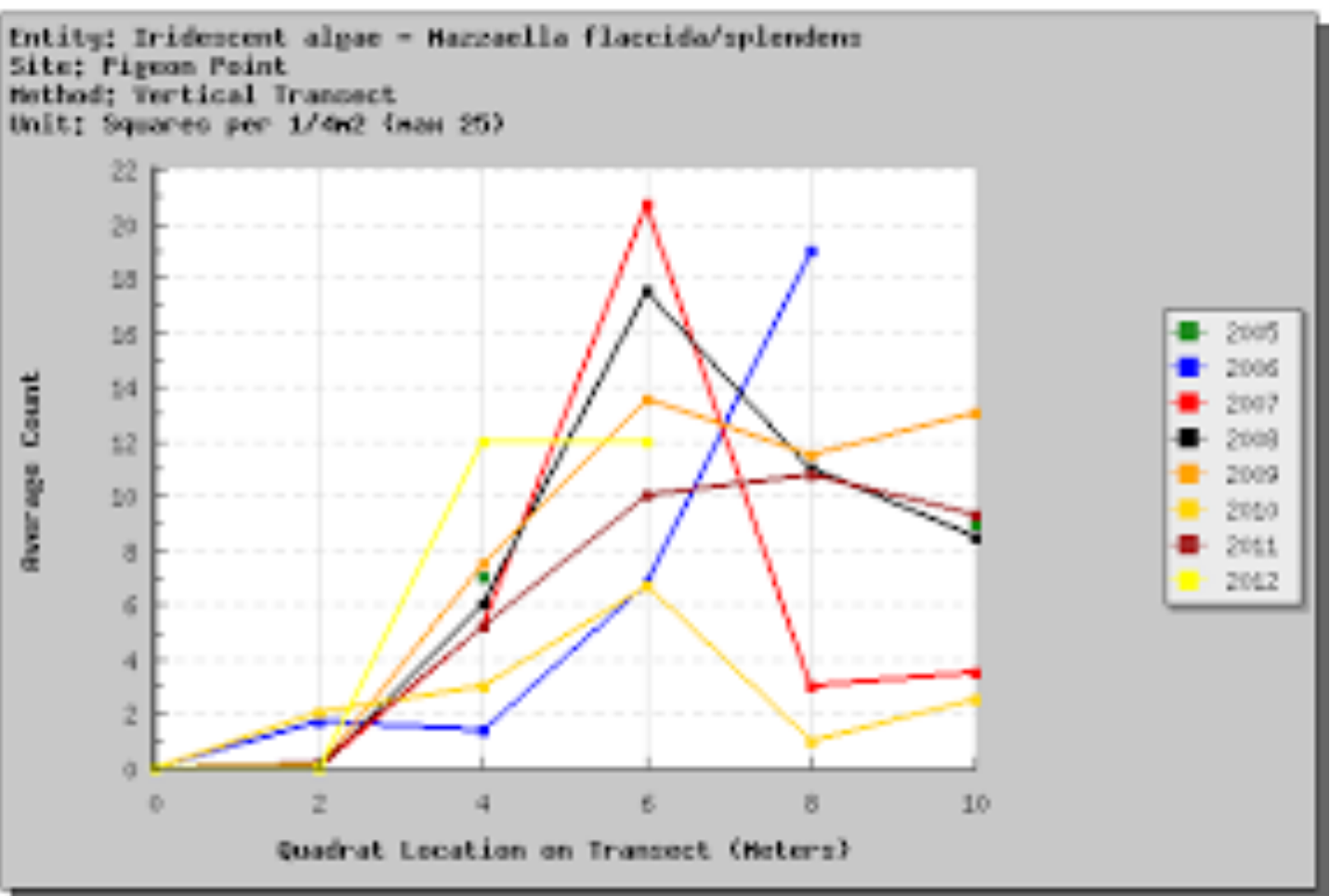


Figure 3. As the algae peaks, the urchins are at its lowest point. As urchins begin to populate, the amount of algae begins to decrease.

Figure 4. During 2010 the majority of the algae was found with in 2-6 meters on the transect. The urchins are found at 10 meters and at 4 meters.

Figure 5. In 2011 the algae moved up the transect and now the majority of urchins are also at the top.

Conclusions

We have noticed that the population of purple sea urchins depends on the amount of iridescent algae in the area. If there is a boom of algae the urchins will grow in populations as well. Because of this result, there could possibly be voracious predation on the iridescent algae.

We also noticed that the iridescent algae reproduce more efficiently than the urchins in the intertidal.

Literature cited

"Coral Reefs and a Scourge of Sea Urchins." *Wildlife Conservation Society*. N.p., 11 Jan. 2011. Web.

Acknowledgments

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